

Acrylic Resin

1. Overview

Manufacturer's Brand Name: M1 or Material One

A white, water-based Acrylic Resin with a fast time to harden.

This resin is mainly used for Casting and Laminating. It can replace epoxy resins, gypsum plaster and concrete in certain applications. We sell it for casting into moulds and do not provide advice on using it for other applications.

Cast in moulds in layers of 2mm to 50mm thick (usually 5-10mm).

UV resistant and highly chemical resistant.

Not approved for food contact and not suitable for heat contact or exposure above 80°C.

Mixing ratio: 2 Parts M1 Powder : 1 Part M1 Liquid by weight. Add powder to liquid with mixing.

2. Safety and Health

- Acrylic resins are water based and have zero VOCs. There are minimal risks or dangers associated with using them.
- Avoid breathing dust (use a fabric dust mask when measuring out the powder).
- Avoid excess skin contact.
- Keep out of reach of children and people who require supervision.

3. Key Parameters

- A white, opaque resin. The natural finish is a smooth matt, comparable to that of a smooth stone.
- Used in layers 2 to 50mm thick when casting. Objects that require specific strength should have reinforcement added to the resin (see point 8).
- Time to harden is usually less than 1 hour. Remove from the mould as soon as it is hard enough to do so. When removed from a mould it will be hard but will still contain water and requires more time for evaporation and to cure fully before sealing or painting.
- Pot life is short. You should be able to use all mixed resin within 15 minutes. After this period the resin will start to thicken and will no longer self-level.
- The cured resin is somewhat porous so should be sealed (see point 10).
- Sufficiently heat resistant and suitable for coasters if coated with 2 coats of our Clear Top Coat.

4. Maximum casting thickness

- This resin has low exotherm i.e. generates some but limited heat. It is thus far less likely to overheat than epoxy resins. Do not exceed 50mm thick castings.

5. Typical Applications

- Laminating e.g. for cladding: We do not provide instructions or advice required for laminating.
- Casting: Pour into moulds and remove as soon as it is hard.
 - A released agent should be used on polyurethane and rigid moulds. No release agent is required on silicone or flexible plastic moulds. Release from moulds similar to plastic ice cube trays is very easy.

6. Mixing

- **Mixing ratio: 2 Parts M1 Powder : 1 Part M1 Liquid by weight.**
- Add powder to liquid with mixing. A smooth, creamy consistency must be achieved.
- Small quantities can be stirred by hand. Use a drill mixer for larger quantities. Mix the liquid with a high shear mixer on a drill (max speed 750 rpm) and pour the powder into the vortex.

7. Preparing a gelcoat if required

A gelcoat is a thick resin that will not flow. Prepare it by adding Thixotropic Thickener into the mixed resin. Add the thickener drop by drop until the required thickness is reached. Extenders are not added into the gelcoat as maximum strength is usually required. Gelcoats are always brushed on with a minimum layer thickness of at least 2mm.

8. Casting with Acrylic Resin

Castings can be made various ways.

- For simple castings e.g coasters: Simply pour the mixed resin into the mould to the required level.
- Thicker solid castings can be made by preparing a gelcoat (thick resin) and brushing it onto the inside of the mould. The gelcoat layer should have a minimum thickness of 2mm. Once the gelcoat reaches a paste stage then pour the bulk of the resin material into the mould. This “filling” resin can be extended with Marble Powder or silica sand (even up to 200% filler) to reduce costs.
- Casting weight bearing surfaces e.g. a stool top: Pour in some resin and wait for it to reach a paste thickness (don't wait longer). Lay on triaxial fabric reinforcement and pour another layer of resin over this.
- Casting an object that will be hollow: Paint a gelcoat layer of at least 2mm thickness onto the inside of the mould. Once it reaches a paste stage then lay on triaxial fabric reinforcement. Immediately paint on a thin layer of normal (un-thickened) resin and when this starts to thicken then paint on another layer of gelcoat at least 2mm thick.
- Creating an object that has edges or sharp corners e.g. a serving tray. The triaxial fabric may not always be suitable for reinforcing. If you push one place, then another place will tend to pull away making sharp corners difficult. You can use Glass Flakes as reinforcement for entire layers or just for corners. Stir Glas Flakes into the mixed resin. These will also thicken the resin so will enable you to create smooth corners.

Always de-mould as soon as possible. The resin must then air-dry further to allow excess water to evaporate. The time required for this depends on the resin thickness and the ambient conditions but usually wait a week or two. If in doubt you can weigh your casting and when the weight stops decreasing from day to day, then evaporation is complete. Only seal the resin once it is fully cured. *(This feature is similar to cement which gets hard but still requires further time to cure and for excess water to evaporate before it can be painted.)*

9. Cleaning

- Clean up tools and containers with water before the resin hardens.
- The cured resin can be washed with soap and water to remove dirt. Stubborn dirt on the resin can be cleaned with mild solvents such as methylated spirits.

10. Adding colourants and surface finishing

Bastion Paint **Allure Epoxy Colourants** work very well in this resin. Only use high concentration colourants like these. As the resin is white, the end colour is a beautiful pastel to medium shade. One drop of colourant for every 15g of resin gives a lovely colour. If you use any powder pigments, mix these into the liquid resin first, before adding the M1 powder.

The cured resin is porous and should be sealed if it is likely to get wet. Only seal it after allowing time for excess water to evaporate. Apply two coats of our Clear Top Coat Gloss or Matt. Using the matt product retains the natural resin appearance while a glossy surface brings out more colour. Sufficiently heat resistant and suitable for coasters if coated with 2 coats of our Clear Top Coat. Our Metallic Paints are high quality acrylics and thus also seal the resin. Note that this type of sealing does not make the resin suitable for use under water e.g. not suitable for basins and water fountains. Do not seal with solvent based sealers.

11. Storage

Store in cool dry area. Keep the powder well sealed. Both resin components have a best before date.

12. Useful Parameters

Mix Ratio By Weight	2 Parts M1 Powder : 1 Part M1 Liquid by weight
Density Wet kg/m ³	1.75
Density Dry kg/m ³	1.65
Pot Life at 22°C	15 to 20 minutes
Demould Time	Approximately 45 minutes.

We supply this resin for decorative and arts and crafts applications. A comprehensive list of strength properties is available on request. Anybody using the resin for construction or other strength critical functions should be familiar with its capabilities.